

*Engineers Australia  
Engineers Australia Sydney Division*

*Nomination*

*Engineering Heritage Australia Heritage Recognition Program*

# *CROWN STREET RESERVOIR*



*March 2019*

*Front Cover – detail of interior of Crown Street Reservoir when emptied for routine maintenance works (2009)*

# ***TABLE OF CONTENTS***

	PAGE
Table of Contents	3
1 Introduction	5
2 Heritage Nomination Letter	6
3 Heritage Assessment	7
3.1 Basic Data	7
3.2 Historical Notes	7
3.3 Heritage Listings	7
4 Assessment of Significance	
4.1 Historical significance	
4.2 Historic Individuals or Association	
4.3 Creative or Technical Achievement	
4.4 Research Potential	
4.5 Social	
4.6 Rarity	
4.7 Representativeness	
4.8 Integrity/Intactness	
4.9 Statement of Significance	
4.10 Area of Significance	
5 Interpretation Plan	
5.1 General Approach	
5.2 The Interpretation Panel	
5.3 Possible Interpretation themes for Interpretation Panels	
5.4 Preliminary Text Blocks for Interpretation Panels	
5.5 Interpretation Panel Design	
6 References	
Appendix 1 Images with Captions	
Appendix 2 Historic Individuals or Associations	
Appendix 3 Maps	
Appendix 4 Time Line for Key Dates	
Appendix 5 Interpretation Panel	

## 1 Introduction

The Crown Street Reservoir is a significant example of reservoir engineering. It is an in-ground reservoir constructed of brick walls and with earth covered, brick jack-arched roof structure supported on timber columns. Almost all the original fabric remains. It has been in continual use since completion in 1959. It continues to provide clean safe drinking water to the people of Sydney. It is the oldest operating reservoir in NSW and the oldest reservoir of its type in Australia.

The Crown Street Reservoir was designed by the prominent late-19th century City Engineer Edward Bell with influences of his predecessor W B Rider.

Originally, this reservoir received its water from the Botany Swamps, Sydney's third water supply source. Following the completion of Sydney's fourth water supply scheme, the Upper Nepean Scheme in 1888, it received its water via Prospect Reservoir. Today it continues to receive its water from the Upper Nepean dams but with the bulk of the water supplied from the large Warragamba Dam (1960), with all the water passing through the Prospect Filtration Plant.

The Crown Street Reservoir was built by the City (Sydney) Council and pre-dates the formation in 1888 of the *Water Board*, today's Sydney Water.

In the 1960s, a car garage was built over the NE corner of the reservoir. The garage was constructed with concrete columns cutting through the brick arch roof to support the new structure. The light weight steel clad garage was removed in c2007 but the concrete columns, concrete floor and ramp were retained. It was decided that removing these elements would cause significant damage to the reservoir.

In the mid-1960s, at the time the new electric pumping station was built on the site, the original valve house to the reservoir on Riley Street was also renewed. It is a face brickwork structure in a similar 'modern' style to the pumping station.

Importantly, in mid 1990s it was proposed that the brick arched reservoir roof be demolished and replaced with a with a steel or concrete roof. Consulting Heritage Engineer Carl Doring recognising the heritage significance of the reservoir, recommended instead that the earth on the roof should be reduced to lessen the dead load. This action saved the original roofing structure.

The Crown Street Reservoir has played a central role in the history of Sydney's water supply. It was also used to fill the Paddington Reservoir by closing off the Crown Street inlet valves. The spill over water went on to Paddington Reservoir at a higher elevation. Interestingly, it was when water started to flow out of the Paddington Reservoir air vents that the pumps at Botany Pumping Station were stopped. The overflowing water was seen via a telescope at the Botany Pumping Station.

The Crown Street Reservoir demonstrates engineering excellence and is of exceptional cultural heritage significance. The Crown Street Reservoir is worthy of an Engineering Heritage Marker.

## ***2 Heritage Award Nomination Letter***

Learned Society Advisor  
Engineering Heritage Australia  
Engineers Australia  
Engineering House  
11 National Circuit  
BARTON ACT 2600

### **Crown Street Reservoir:**

The above-mentioned work is nominated to be awarded an Engineering Heritage Marker.

The reservoir is located in the block of Reservoir, Riley, Campbell Streets and corner of Crown Street in Surry Hills, Sydney.

Sydney Water is the owner.

Sydney Water has been advised of this nomination and a letter of agreement is attached.

Access to site is via the main gates on Reservoir Street. A member of Sydney Water's staff will need to be present.

The Nominating Body for this nomination is Engineers Australia Sydney Division.

**Simon Wiltshier**  
**Chair**  
**Engineering Heritage Sydney**

Date: 2019

### ***3 Heritage Assessment***

#### ***3.1 Basic Data***

**Other/Former Names:** Crown Street Reservoir and Site, Water Store 34, WS 34, WS0034.

**Location:** On the block bounded by Reservoir, Riley, Campbell and Crown Streets, Surry Hills, Sydney.

**Address:** 224A Riley Street, Surry Hills, NSW 2010

**State:** NSW

**Local Govt. Area:** Sydney

**Owner:** Sydney Water

**Current Use:** Water Reservoir

**Former Use:** Water Reservoir

**Designer:** Edward Bell & Will Wadsworth

**Maker/Builder:** Excavation - John Tighe. Reservoir construction - Donohoe and Vaughan

**Year Started:** 1857

**Year Completed:** 1859

**Physical Description:** In ground reservoir with two internal chambers. Each further divided by low level quarter walls.

**Physical Condition:** Good

#### ***3.2 Historical Notes***

The Crown Street Reservoir site was purchased by the City (Sydney) Council from the Riley Estate under the ownership of Mrs. M. A. Burdekin in 1856 when much of the surrounding area was vacant land.

The site comprised an area of approximately two acres situated between Crown, Riley, Reservoir (then Gipps) and Campbell Streets and appears to have been undeveloped prior to its acquisition for the construction of the reservoir.

The negotiations for compensation for the resumption of the site proved protracted and continued through to 1858 well after construction of the reservoir had commenced. The boundary of the site remains intact until today apart from one perch (about 25 m<sup>2</sup>) of land resumed from the corner of Campbell and Crown Streets for road widening in 1917. The consequence of this resumption is the curved site corner reflected in the façade of the former 1960s administration building.

In 2009 the site was subdivided with Sydney Water retaining ownership of the 1965 pumping station and the underground reservoir. The former workshops and administration buildings

were sold for redevelopment. The entire site remained listed on the NSW State Heritage Register.

The building of the reservoir was affected by the 1950s gold rush when a substantial part of the workforce left Sydney to try their luck on the gold fields. The number of available skilled workers and craftsmen plummeted leading to an inflation of wages. This occurred to such extent that the estimations for the construction of the reservoir were revised in 1858 'in consequence of the rise of wages from such a number of people leaving Sydney'. This migration however did not significantly affect the level water consumption in Sydney which remained high.

The reservoir structure was constructed from mid-1857 with tenders for the excavation of the site and construction of the reservoir called between December 1857 and March 1858. The contract for the excavation work went to John Tighe and was completed by October 1858 for the price of £3,895. The spoil (which included 4,000 cubic yards of solid rock) was used to regrade surrounding streets. Donohoe and Vaughan constructed the reservoir.

The reservoir was built in brick with the floor partly cut in bedrock and covered in bitumen but mainly in brick. Some 300,000 waterproof bricks imported from England were used for the lining (including both walls and floor). The contract for the construction of the masonry and brickwork structure inclusive of the brick arches of the reservoir was let in November 1858 to Donohoe and Vaughan for £14,929.

The jack-arch roof was laid on the cast-iron roof beams and timber columns with the column capitals imported from England by Rabone Feez & Co. The arched cast-iron cross-stays followed the shape of the brick jack arches.

The water valves were produced by a Sydney company, P.N. Russell and Co.

The reservoir was fed through the 30-inch pipe imported by P. N. Russell from the Botany Swamps directly to Baptist Street and then along Crown Street.

The contract for the tar-sealing of the roof and covering in clay puddle and earth was let in August 1858. The puddling over the roof, laying of soil and sowing of grass was not undertaken until early 1860 although the reservoir was completed and in service by December 1859.

In the original arrangement the reservoir featured three tall rendered brick ventilation shafts built on a square plan around 1859.

### ***3.3 Heritage Listings***

#### **NSW State Heritage Register**

Title: Crown Street Reservoir & Site

Number: 01323

Date: 1999

#### **National Trust of Australia (NSW) Register**

Title: Crown Street Reservoir

Number:

Date: 2000

#### **Sydney Water's Section 170 Heritage & Conservation Register**

Title: Crown Street Reservoir & Site

Number: 4575728

Date: 2002



The Metropolitan Water Sewerage and Drainage Board's arms were granted by the College of Arms in London in March 1965. The use of the arms was discontinued when the business was Corporatised in 1994.

It features Aquarius the water carrier on the left, and on the right is Hygieia – the ancient Greek goddess of Health, cleanliness and sanitation. The red wavy lines in the upper middle of the shield represent clouds, and the blue drops rain falling in each of the three major catchments. The blue wavy lines at the bottom of the shield represent the ocean that we discharge back into. The scallop shell in the middle is from Viscount Sydney's Coat of Arms, and the lion and golden fleece are taken from NSW's coat of arms. At the top is the community we serve: the wheel represents industry, the scythe represents outer rural communities, and the anchor represents the Ports of Sydney harbour, Botany Bay and Port Kembla.

## **4 *Assessment of Significance***

### **4.1 *Historical significance:***

Crown Street Reservoir (WS0034) is the oldest operating service reservoir in Australia. It is the oldest continually operating reservoir of its type in Australia. Yan Yean Reservoir in Melbourne is slightly older (completed in 1857) but is an earth dam construction. Crown Street Reservoir has been in continual use since opening in 1859 providing potable drinking water to the inner city of Sydney.

This reservoir is associated with a Botany Swamps Scheme, Sydney's third water supply source. It was operating before the commencement of the Upper Nepean Scheme and the formation of the Board of Water Supply & Sewerage in 1888. It operated in parallel with Busby's Bore from 1859 to 1888. (Supplying Royal Botanic Garden until c1905).

The reservoir was constructed to receive water from the Botany beam-engine pumping station. However, following the construction of Sydney's fourth water supply scheme, the Upper Nepean Scheme opening in 1888, it then received its water via Prospect Reservoir. Today it still receives its water from the Upper Nepean dams and with the bulk of the water coming from the large Warragamba Dam. The water passes through the Prospect Filtration Plant.

Water is also pumped from the Crown Street Reservoir, when needed, up to the Centennial Park reservoirs.

### **4.2 *Historic Individuals or Association:***

The Crown Street Reservoir was designed by the prominent late-19th century City Engineer Edward Bell with influences of his predecessor W B Rider. Donohoe and Vaughan constructed the reservoir.

The Crown Street Reservoir was developed by Sydney City Council and represents a major piece of infrastructure developed by the Council. The site was also used as the Council's main works depot for the construction and maintenance of the town's reticulated water and sewerage system from c.1880.

The Crown Street Reservoir and Site have considerable historical associations with the development of Sydney Water. It was also the location of its Central Workshops and store depot (c.1890-1930s), its main materials testing laboratory (c.1940-1949, and 1962-1984), the photographic services section (1962-1991), and the meter and tap testing branch (c.1890-early 1990s) where all consumer-type taps, meters, and sanitary fittings used in Sydney were tested.

The Crown Street Reservoir and Site was a place of employment for a considerable number of past generations of Sydney Water staff.

### ***4.3 Creative or Technical Achievement:***

The Crown Street Reservoir structure demonstrates the high level of technical expertise and construction techniques that were available in Australia in the 1850s, including the use of cast-iron beams and specially fired bricks imported from England.

The imported cast-iron beams used in the reservoir roof construction were structurally tested to prove their load strength prior to installation which is an early example of the application of scientific materials testing in NSW. The beams were technically described as 'uniform load'. The cast iron roof beams are not uniform, they are thicker at their midspan in both the horizontal and vertical planes. They also have vertical stiffeners to guard against collapse. The bottom of the beam appears to be "fish bellied," but are obscured by the brick jack arches.

The creation of the reservoir with capacity to serve about 85% of the then Sydney population was a major technical achievement at the time of completion.

The Crown Street Reservoir Site was an integral part of the Botany Swamps Scheme which effectively marked the commencement of pumping the city's water supply. Botany ceased to pump when the Upper Nepean Scheme came online.

The Crown Street site contains a brick, stone and iron-railing fence features high aesthetic qualities and provides a pleasing foreground to the reservoir and adjoining areas. The construction of this fence is of a very high quality that evokes its nineteenth century date of construction.

### ***4.4 Research Potential:***

The Crown Street Reservoir is an early example of a mid-19th century fire-proof jack-arch roof construction in NSW. It is the only remaining reservoir in the Sydney Water system featuring wooden columns. The reservoir was built in special impervious bricks imported from England.

The Crown Street Reservoir and Site is associated with the second major steam driven water pumping station erected in Sydney. (completed between 1876 -1879 and demolished c.1958). It is also associated with the third major steam driven water pumping station erected in Sydney. (completed in 1889 and demolished in 1962)

The Crown Street Reservoir and Site contains artefacts from past uses and installations that by their contextual association contribute to an understanding of the site's development. These artefacts include: – Remnant valves and delivery and intake pipes from the late nineteenth century. – Possibly remnant sections of the 30-inch Botany Swamps rising main manufactured in Scotland in the 1850s.

#### **4.5 Social:**

The Crown Street Reservoir and Site has always been used as a water storage facility and associated activities. Although there are no known special associations with any community or cultural groups in NSW for social, cultural or spiritual reasons.

The site was used as a partial Head Office when the new Head Office was being built in Pitt Street (1935-39).

While the reservoir would have had a highly positive impact on the surrounding community when commissioned in the 1850s, the provision of water services is now commonplace and the strong initial association with the local community has been lost.

#### **4.6 Rarity:**

The Crown Street Reservoir is one of only two underground reservoirs built in NSW utilising hardwood columns to support the roof. (the other being the former Paddington Reservoir). It is one of a small group of covered reservoirs each demonstrating differences in construction, design and architectural detailing. It is the earliest reservoir that remains in use and one of four associated with Botany Swamps Scheme. The others being Paddington Reservoir, Woollahra Reservoir and Waverley Reservoir No1.

#### **4.7 Representativeness:**

Crown Street Reservoir is representative of the first inground covered water reservoirs that were fully constructed in NSW and Australia (verses dams or pond like reservoirs). It is identifiable by its brick structure and brick arched roof. It is the oldest and longest serving reservoir and considered the most important of this group.

The Crown Street Reservoir and Site contains a 1965 electric water pumping station that is representative of the design and the equipment of other major water pumping stations in NSW in the 1960s.

#### **4.8 Integrity/Intactness:**

Crown Street Reservoir demonstrates the *highest* degree of integrity having been in continuous use as a water reservoir, with associated water pumping, since being commissioned in 1859.

Crown Street Reservoir is very intact, retaining most of its original fabric, including the brickwork, steel arches and some internal timber columns. Some of these columns have been replaced over time with either timber, concrete or brick. The earth roof covering has been replaced with new soil in the 1990s, although at a reduced thickness to lessen the load.

#### ***4.9 Statement of Significance:***

The Crown Street Reservoir is the oldest water supply service reservoir operating in Australia. It is the oldest reservoir of its type in Australia. It has been continuously operating since 1859.

The Crown Street Reservoir was designed by the prominent late-19th century City Engineer Edward Bell with influences of his predecessor W B Rider. The reservoir was constructed by builders Donohoe and Vaughan.

The site has unique associations with the early development of Sydney City Council and Sydney Water Corporation.

The Crown Street Reservoir and Site comprise the first fully constructed water reservoir in Australia. The site also contains a 1965 electric water pumping station which is the third water pumping station to have been built on the site, the previous being coal fired.

The Crown Street Reservoir is representative of the first type of Australian water reservoirs built below ground, covered brick-built roof structure on a rectangular plan.

In terms of technological significance (including functionality, capacity, and structural details) it is the most important representative reservoir of this group built in NSW and probably Australia.

The Crown Street Reservoir demonstrates advanced technological practices and a high level of design. It demonstrates the work practices of civil engineering and the craftwork of the mid-nineteenth century.

The Crown Street Reservoir features rare examples of mid nineteenth century technologies in the brick jack-arch and cast-iron uniform strength (fish bellied) beamed roof supported in part by hardwood columns. Its unique structural features include brick walls, arches and the 'uniform strength cast iron girders.

The completion of the reservoir marked a major technological landmark not only in the history of the delivery of reticulated water to the city of Sydney but also in the history of civic services in NSW and Australia. When completed it provided reticulated water to approximately 85% of Sydney's population. When constructed it was a major component of the Botany Swamps Scheme, Sydney's third water supply source.

The Crown Street Reservoir is a major item of water supply infrastructure developed in the nineteenth century. The water pumping function continues through the extant third water pumping station on the site built in 1965.

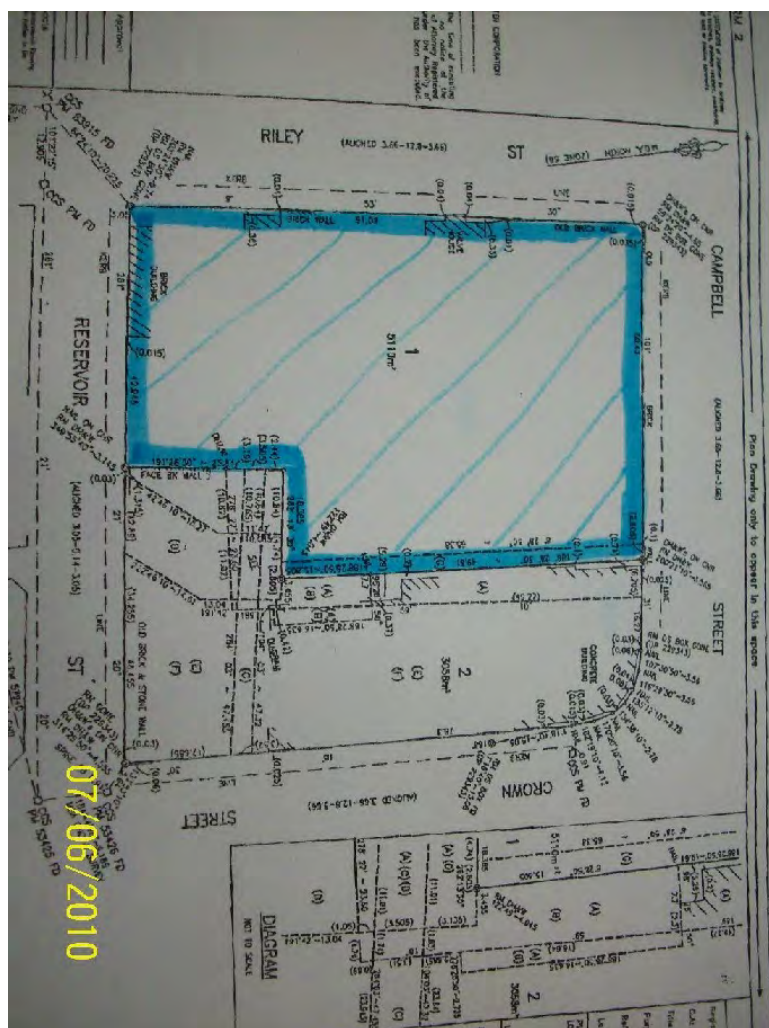
The development of the site through the 1960s included the creation of the administration building (1962), subdivision of the site in 2009 and the sale of the administration building and the former workshops. The administration building has been adapted to shops and offices, whilst the workshops building has been adapted to a restaurant, café and bar.

The Crown Street Reservoir remains a significant element within the Sydney Water's water supply system.

#### 4-10 Area of Significance:

The reservoir structure is situated in the north-east portion of the site. The underground tank is built of brick and stretches in a north-south direction. The floor is partly cut in bedrock and covered with bitumen but mainly laid in brick. The reservoir is about 62.5m long and about 55m wide with an internal height of 7m and an available storage depth of 4m. The overall capacity of the reservoir is approximately 15 Megalitres.

The heritage curtilage is defined by Lot 1 of DP no.1106583, as shown on the curtilage plan below.



Illustrating: Lot 1, the land retained by Sydney Water, containing the 1965 pumping station and reservoir. 2010.

[© Sydney Water Corporation, Heritage collection, uncatalogued]

## ***5 Interpretation Plan***

### ***5.1 General Approach***

The ceremony should be held midyear 2019. The ceremony should be held on site in the carpark area between the reservoir and the pumping station, entered off Reservoir Street in Surry Hills.

The interpretation panel could be located on the roof of the reservoir made to be visible from the entry gate from Reservoir Street OR it could be located between the Riley Street wall and the reservoir edge (in the garden area) as it is visible when walking or driving along the street

### ***5.2 The Interpretation Panel:***

- 1 Title "Crown Street Reservoir".
- 2 Logos of Engineers Australia and Sydney Water to be incorporated.
- 3 A small scale representation of the EHA marker plate.
- 4 The date and other details of the marking ceremony.
- 5 Text will be 24-point Arial Bold.
- 6 A map showing the site.
- 7 Captions for each photograph.
- 8 Text not to exceed 500 words excluding headings.
- 9 Size to be 1200 mm wide by 600 mm high.
- 10 The panel to be constructed of vitreous enamel-on-steel plate with flanges (Appendix 5).
- 11 The panel to be mounted on a steel free-standing frame (Appendix 5).
- 12 The EHA marker to be mounted below the interpretation panel (Appendix 5).

### ***5.3 Possible Interpretation themes for Interpretation Panels***

The following subjects have been assessed as possible themes for the interpretation panel:

- a) The history of Sydney Water & the "Water Board".
- b) The story of the Botany Swamps, Sydney's 3<sup>rd</sup> Water Supply

- c) The evolution of water reservoirs
- d) Required the development of large rising mains without lead joints

#### ***5.4 Preliminary Text Blocks for Interpretation Panels***

*The Crown Street Reservoir is the oldest water supply service reservoir operating in Australia. It is the oldest reservoir of its type in Australia. It has been continuously operating since 1859.*

*The Crown Street Reservoir was designed by the prominent late-19th century City Engineer Edward Bell with influences of his predecessor W B Rider. The reservoir was constructed by builders Donohoe and Vaughan.*

*The site has unique associations with the early development of Sydney City Council and Sydney Water Corporation.*

*The Crown Street Reservoir and Site comprise the first fully constructed water reservoir in Australia. The site also contains a 1965 water pumping station which is the third water pumping station to have been built on the site.*

*The Crown Street Reservoir features rare examples of mid nineteenth century technologies in the brick jack-arch and cast-iron beam roof supported in part by hardwood columns. Its unique structural features include brick walls, arches and "uniform strength" cast iron girders.*

*The Crown Street Reservoir was developed by Sydney City Council and represents a major piece of infrastructure developed by the Council. The site was also used as the Council's main works depot for the construction and maintenance of the town's reticulated water and sewerage system from c. 1880.*

*The Crown Street Reservoir and Site have considerable historical associations with the development of Sydney Water. It was also the location of its central workshops and store depot (c. 1890-1930s), its main materials testing laboratory (c. 1940-1949, and 1962-1984), the photographic services section (1962-1991), and the meter and tap testing branch (c. 1890-early 1990s) where all consumer-type taps, meters, and sanitary fittings used in Sydney were tested.*

*The Crown Street Reservoir and Site was a place of employment for a considerable number of past generations of Sydney Water staff.*

### ***5.5 Example of the Interpretation Panel***



***Interpretation at Kings Bridge, Bendigo. This is one of two panels recognising a group of Monash & Anderson Monier arch bridges at Bendigo, August 2014.***

The EHA marker to be mounted below the interpretation panel as illustrated in this example.

## 6 *References:*

Asset Management Division, Sydney Water Corporation. [2004] **Crown Street Reservoir and Site, Conservation Management Plan.**

Based, primarily, on these references:

Aird W V [1961] *The Water Supply, Sewerage and Drainage of Sydney*

AWT EnSight [1997] *Draft Conservation Plan for Crown Street Reservoir Site*

Blackmore K [1988] *Centennial Park History*

Beasley M [1988] *The Sweat of their Brows*

Doring C & M J [1991] *Crown Street Reservoir Site Heritage Assessment*

Graham Brooks & Associates, [2001] *Heritage Impact Assessment –Proposed Subdivision, Crown Street Reservoir, Surry Hills*

Henry F J J [1939] *The Water Supply and Sewerage of Sydney*

Keating C [1991] *Surry Hills. The City's Backyard*

*M.B.W.S & S. Official Handbook [1913]*

*M.B.W.S & S Commonwealth Celebrations [1010]*

Roseby T J [1918] *Sydney's Water Supply and Sewerage 1788 to 1918*, Opening new offices commemoration volume

Royal Agricultural Society Archives (Homebush)

Stephany James [1993] *Iron Palisade Fence, Crown Street Depot, Surry Hills*

Sydney Water Board Journal, *Eastern Suburbs Water Supply*, Vol 11, page 56

Sydney Water Records File 515780F4 (SWC File 515780F4) *Soil and Groundwater Contamination Investigation –Crown Street Reservoir Site, Surry Hills*, EPA Auditor Review

Sydney Water Records File (SWC File 508524F1) *Property Stage 1 Report, Environmental Site Assessment SWC Office and Reservoir, Crown Street Surry Hills*

Sydney Water Records File (SWC File 537520F0) *Property Stage 2 Report, Environmental Site Assessment, Crown Street Reservoir, Surry Hills*

Tropman & Tropman Architects [1996] *Conservation Assessment Report of Water Board Meter Shop, Reservoir Street, Crown Street Depot*

Thorpe N.J. [1989] 'Water Supply and Sewerage' published in Frazer D. (ed.), *Sydney from Settlement to City*

## ***7 Acknowledgments, Authorship and General Notes***

### ***7.1 Acknowledgments***

Jon Breen

### ***7.2 Nomination Preparation***

This nomination was prepared by: Philip Bennett, Sydney Water - Lead Heritage Adviser.

### ***7.3 General Notes***

This document has been prepared in accordance with the Commonwealth Government Style Manual for authors, editors and printers, Sixth Edition, revised by Snooks & Co, 2002.

### ***Appendix 1: Images with captions***

### ***Appendix 2: Historic Individuals or Associations***

### ***Appendix 3: Maps***

### ***Appendix 4: Time Line***

### ***Appendix 5: Interpretation Panel***

## ***Change Control***

### **CHANGE CONTROL**

VERSION 1 26 FEBRUARY 2016

VERSION 2 20 NOVEMBER 2017 COMPRESSED TO 11 PAGES

VERSION 3 4 APRIL 2018



## ***Appendix 1: Images with captions***



1961



2018



**Illustrating:** The Old Botany Engine House c.1870s, [Roseby, p. 41]



**Illustrating:** The Old Botany Engine House c.1870s, [Roseby, p. 41]



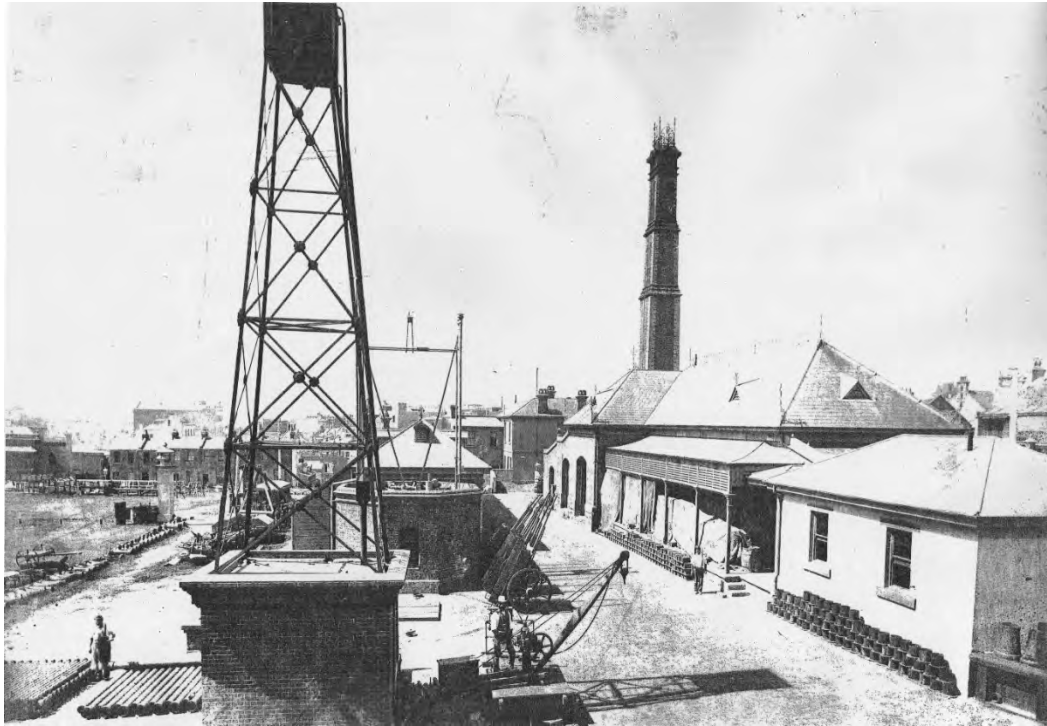
**Illustrating: The First Crown Street Pumping Station, c.1880s.**

View from east (Crown Street). [Sydney Water/WaterNSW Historical Research Archive, photo ref. X770518-16]



**Illustrating: The Office and Workshop buildings c.1890, view from Crown Street.**

The Office building in front, the Workshop behind (double storey). Note the Crown Street gate and the elevated tank for pressure testing fittings. [Sydney Water/WaterNSW Historical Research Archive, photo ref. XA861015-6]



**Illustrating: The Crown Street Site c.1890s.**

Note the first (Crown Street) Valve House (the octagonal structure near the centre of the photograph) and the altered rear of the first pumping station. [Sydney Water/WaterNSW Historical Research Archive, no reference number]



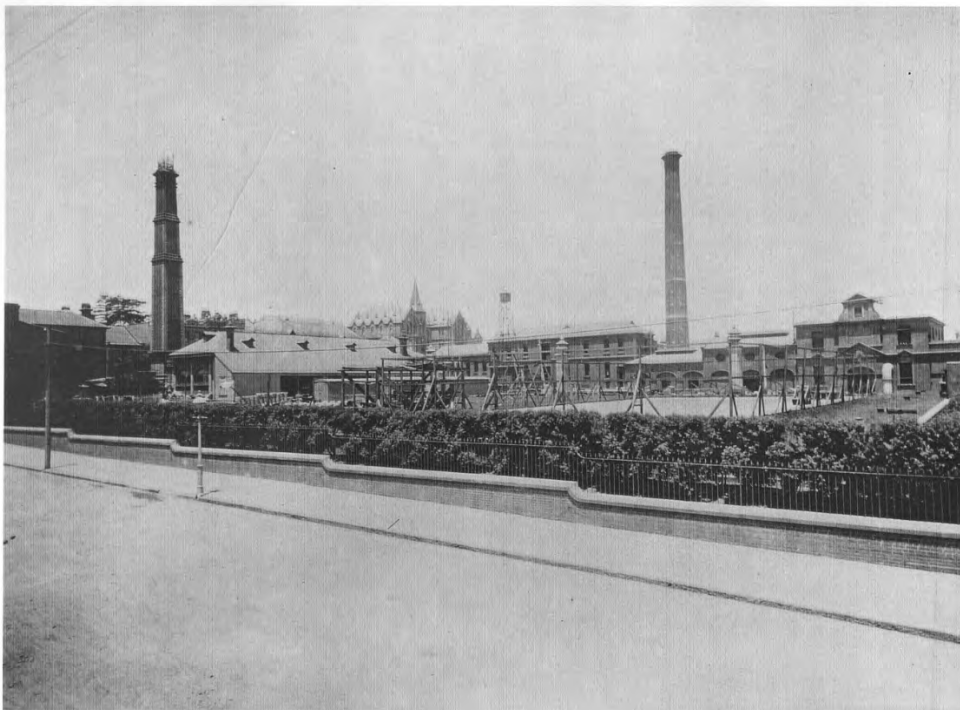
**Illustrating: The reservoir roof viewed from the west c. early 1890s.**

[Sydney Water/WaterNSW Historical Research Archive, ref. A-1157]



**Illustrating: The Riley Street Valve House, c.1895-1905, view from Riley Street.**

Note the fenced tennis court and the three brick shafts on the reservoir roof. [Sydney Water/WaterNSW Historical Research Archive, A 309].



**Illustrating: The Crown Street Site photographed before 1901.**

Note the fenced tennis court, the single-storey chimney base to the Second Pumping Station, the double-storeyed Workshop. [Sydney Water/WaterNSW Historical Research Archive, RS/P/83].



**Illustrating: The Crown Street Site photographed c.1910s.**

Note the tennis court on the reservoir roof, the buildings on the left side, the double-storey base to the Second Pumping Station chimney. [Roseby, p. 43]



**Illustrating: The Crown Street Site photographed in 1937.** [Sydney Water/ WaterNSW Historical Research Archive]



**Illustrating: The Crown Street Site photographed in 1937.** [Sydney Water/ WaterNSW Historical Research Archive]



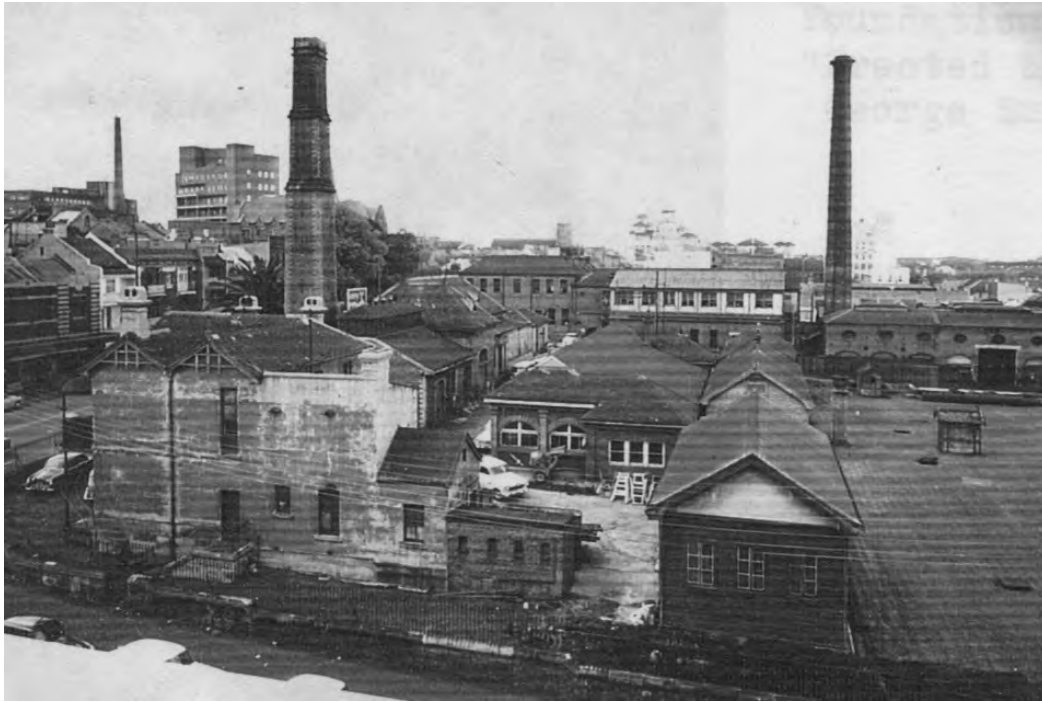
**Illustrating: The Crown Street Site photographed in 1937.** [Sydney Water/ WaterNSW Historical Research Archive]



**Illustrating: The Crown Street Site photographed in 1937.** [Sydney Water/ WaterNSW Historical Research Archive]



**Illustrating: The Crown Street Site photographed in 1937.** [Sydney Water/ WaterNSW Historical Research Archive]



**Illustrating: The Crown Street Site in 1959.**

Note the large Engineer's Residence on Crown Street (the left-hand side of the photo) and the in-filled veranda on the second storey of the Workshop building. [Sydney Water/WaterNSW Historical Research Archive, photo ref. 590908-4]



**Illustrating: The Reservoir roof and the Second Pumping Station in 1959.**

Note the pipes stored on the reservoir roof, the double-storey base to the Second Pumping Station chimney, the large door opening on the Pumping Station building and one of the three brick ventilation shafts on the site. [Sydney Water/WaterNSW Historical Research Archive, photo ref. 590908-2]



**Illustrating: The Crown Street Site photographed in 1961.**

This photograph shows the area where the Engineer's Residence and adjacent structures were removed. Note also the then surviving perimeter vegetation and three brick ventilation shafts. [Sydney Water/ WaterNSW Historical Research Archive, uncatalogued]



**Illustrating: The Second Pumping Station, viewed from south-west in 1963**

[Sydney Water/WaterNSW Historical Research Archive, photo ref. 630701-22].



**Illustrating: Construction of the Third Crown Street Pumping Station in 1964.**

The excavations for the new pumping station. Note the brick wall of the reservoir on the righthand side of the photograph. [Sydney Water/ WaterNSW Historical Research Archive 640228-5







**Illustrating: The removal of the grounds from Reservoir roof during the 1993 works on the site.**  
 [Sydney Water/WaterNSW Historical Research Archive, uncatalogued]

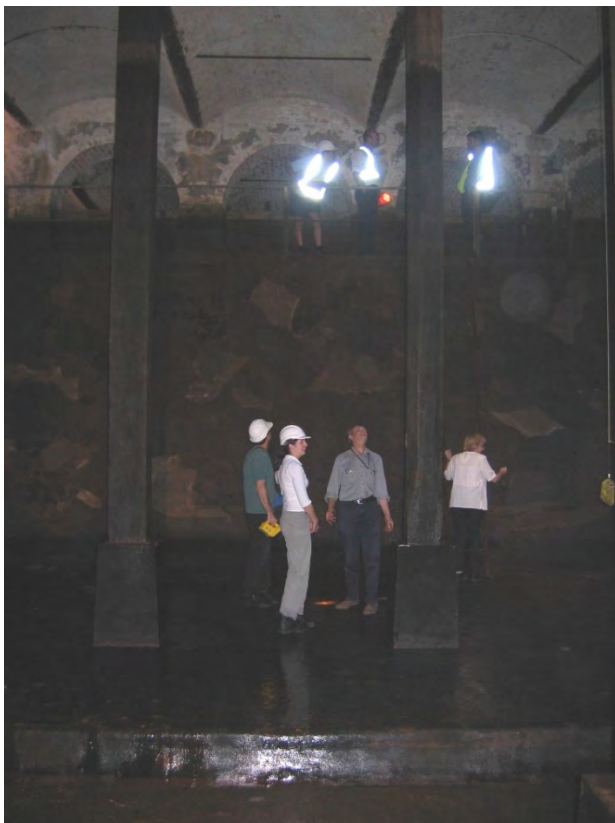


**Illustrating: The removal of the 1960s garage structure.**  
 © Sydney Water Corporation, Heritage collection, uncatalogued



**Illustrating: The garage removed, concrete floor and ramps remain**

© Sydney Water Corporation, Heritage collection, uncatalogued



**Illustrating: The interior of the reservoir 2004.**

[© Sydney Water Corporation, Heritage collection, uncatalogued]



**Illustrating: The reservoir 2009.**

[© Sydney Water Corporation, Heritage collection, uncatalogued]



**Illustrating: The interior of the reservoir 2009.**

[© Sydney Water Corporation, Heritage collection, uncatalogued]



**Illustrating: The interior of the reservoir 2009.**

[© Sydney Water Corporation, Heritage collection, uncatalogued]



**Illustrating: The interior of the reservoir 2009.**

[© Sydney Water Corporation, Heritage collection, uncatalogued]



**Illustrating: The interior of the reservoir 2009.**

[© Sydney Water Corporation, Heritage collection, uncatalogued]



**Illustrating: The interior of the reservoir 2009.**

[© Sydney Water Corporation, Heritage collection, uncatalogued]



**Illustrating: The interior of the reservoir 2009.**

[© Sydney Water Corporation, Heritage collection, uncatalogued]



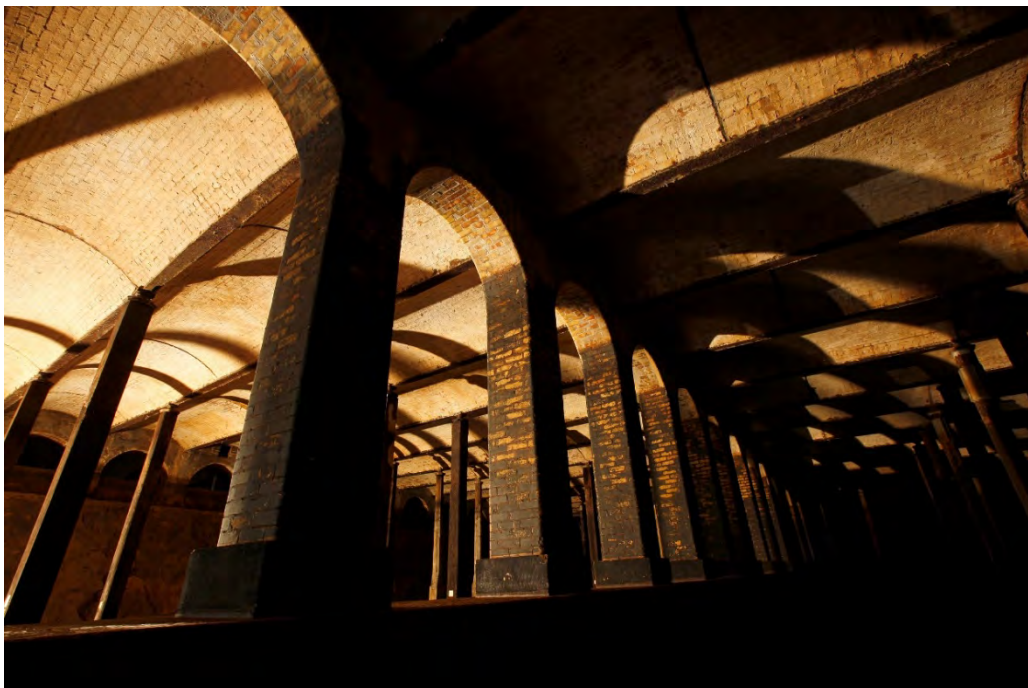
**Illustrating: The interior of the reservoir 2009.**

[© Sydney Water Corporation, Heritage collection, uncatalogued]



**Illustrating: The interior of the reservoir 2009.**

[© Sydney Water Corporation, Heritage collection, uncatalogued]



**Illustrating: The interior of the reservoir 2009.**

[© Sydney Water Corporation, Heritage collection, uncatalogued]



**Illustrating: The reservoir grassed roof. 2018.**

[© Sydney Water Corporation, Heritage collection, uncatalogued]



**Illustrating: The reservoir grassed roof. Note one ventilator extant. 2018.**

[© Sydney Water Corporation, Heritage collection, uncatalogued]



**Illustrating: Reservoir Street elevation, 1965 pumping station and former workshops. 2018.**  
 [© Sydney Water Corporation, Heritage collection, uncatalogued]



**Illustrating: The 1965 pumping station, corner Reservoir & Riley Streets. 2018.**  
 [© Sydney Water Corporation, Heritage collection, uncatalogued]



**Illustrating: The original sandstone Crown Street entry gate post. 2018.**

[© Sydney Water Corporation, Heritage collection, uncatalogued]



**Illustrating: Original fence along Riley Street and 1965 access chamber / valve house 2018.**

[© Sydney Water Corporation, Heritage collection, uncatalogued]



**Illustrating: Riley Street elevation. 2018.**

[© Sydney Water Corporation, Heritage collection, uncatalogued]



**Illustrating: Employees at the Crown Street site photographed in 1914.**

[Sydney Water/WaterNSW Historical Research Archive, uncatalogued]

### ***Appendix 3: Historic Individuals or Associations***

The plan for Crown Street Reservoir began with the creation of the Botany Swamps water scheme in 1859. This water scheme, developed by **Edward Bell** and **Will Wadsworth** proposed several reservoirs at critical points around the city.

Construction of the Crown Street Reservoir was completed by 1959 (Paddington Reservoir by 1866) and connected to the Botany Swamps pumping station. This offered a new source of water to suburbs of Sydney which had only previously been supplied by Busby's Bore draining from the Lachlan Swamps in today's Centennial Park.

---

**Edward Bell** and the interdisciplinarity of engineering and architecture in Victorian Sydney

*Fabrications: the journal of the Society of Architectural Historians, Australia and New Zealand*

Publication: 2013-01-01

Edward Bell, Sydney's City Engineer and Surveyor from 1856 to 1870, challenges our current-day view of the disciplinary framing of architecture and its allied fields. In Victorian Sydney, the boundaries of these disciplines were more fluid than they are today, and Bell viewed architectural projects such as the Botany Pumping Station, Sydney's first Exhibition Hall and even the Sydney Town Hall as not beyond his skills or area of responsibility. At the same time, his influence on the design and construction of much of the city's Victorian infrastructure, including his role in the development of the city's sewerage and water systems, has been under-acknowledged.

Works such as the Paddington Reservoir, Thornton's Obelisk and numerous public stairways are some of the urban elements designed by Bell that still exist in Sydney today. Integrated into the urban life of the city, these overlooked elements have become monuments not to their largely unknown designer, but to the mayors and aldermen of his era, after whom they are named.

This paper will review some of these projects, exploring the architectural implications of Bell's work in his own time and its ongoing contribution to the urban and architectural heritage of the city of Sydney. Many of Bell's works extended beyond what today would be the jurisdiction of the civil engineer or surveyor and well into the territory of the urban designer and architect. What later were to become distinct specialisations were at the time overlapped, meaning that Bell's work has important implications for concepts of authorship in architecture, the status and appreciation of designed objects and the identity and sociology of the professions

Preston, Jennifer  
Stead, Naomi Jean

---

The status of the offices of City Surveyor and City Engineer were subject to a great deal of change in the 19th century. The first appointment was James Aird on 5 December 1842, who was City Surveyor and City Engineer. At the same time, there was an officer called the District Surveyor. William Buchanan. was appointed District Surveyor in 1842 and remained in office until March 1846 when Council abolished the position and the duties were taken over by the City Surveyor.

(CRS 21/4, Committee Reports).

James Aird was dismissed on 26 June 1843, partly for being intoxicated whilst on duty. He was replaced by William Moir, who was appointed on 13 July 1843 and was called City Surveyor.

The first person to be known as City Engineer and to carry on a separate office was **Edward Bell** in 1851. From 1851 to 1859 there were separate posts of City Engineer and City Surveyor.

From 1859 to 1870 the offices were combined, and **Edward Bell** was known as City Engineer and City Surveyor. When he resigned in 1870 the offices were separated again. They stayed separate until 1890 when the office of City Engineer was placed under the control of the City Surveyor.

Because there have been so many changes to the status of the offices, it was decided to register them as one agency, even though they operated as separate departments for some of the time during 1843 to 1890.

This agency was responsible for cleansing until 1847, disposal of garbage in Council's destructors or by tipping etc, water supply until 1888, sewerage until 1889, lighting, wood blocking, repair and construction of the streets, street improvements (including street widening and extensions), regulation of signs and hoardings, watering of streets, and preparation of survey plans.

[From City of Sydney Archives - Agency No. 86. Used with permission]

---

## **Grace's guide to British industrial history**

Edward Bell (1812-1875)

### **1875 Obituary**

MR. EDWARD BELL was born on the 4th of October 1812, at Hackney, where his education was conducted under Dr. Allen.

In 1827 he was articled to Mr. John Hague, M. Inst. C.E., for seven years, during which time he was employed in the drainage of fens in Norfolk and Lincolnshire, the Shadwell entrance to the London Docks, the St. Katherine's Docks, the drainage and water supply of the city of Amsterdam, the mints at Amsterdam and Rio de Janeiro, &c.

After the completion of this service, he had charge of Mr. Ogle's steam-coach for common roads.

In 1836 Mr. Bell was engaged by Messrs. Gower and Co., of London, to make surveys, valuations, and reports upon their property and establishments in New York, in erecting patent dips and hydraulic stages for lifting ships, and in inspecting the Erie and Philadelphia railroads.

On his return, in 1837, he obtained, through the agency of the Messrs. Gower, the appointment of Chief Engineer to H.H. Mehemet Ali, Pacha of Egypt, for three years, when he was occupied in altering and completing the graving dock and pumping machinery in the arsenal of Alexandria; in directing the transport of steamships and their machinery across the Isthmus of Suez to the Red Sea; and in superintending various works.

In 1840 he returned to England and commenced practice for himself, at the same time obtaining the Lectureship on Machinery in connection with Civil Engineering at the College for Civil Engineers at Putney. The principal works on which he was engaged were the Norland Waterworks at Notting Hill; Cwm Avon works, railway and dock at Port Talbot; waterworks and extension of gasworks for the town of Llanelly; Llanelly railway and docks in South Wales; Ton-Nawr railway and mountain inclines in South Wales; and the Manchester, Leeds, and York railways.

The Lectureship of the College was relinquished in 1845, and his private practice in 1850, when, at the solicitation of the Volga Steam Navigation Company, he went to Russia as its supervising and consulting Engineer. Here he was chiefly engaged on the improvement of the navigation of the river Volga; in directing the operations of the Company's fleet, and in making surveys and plans for waterworks in the town of Simbirsk.

In 1854 Mr. Bell resigned this appointment, in consequence of the Crimean war, but did not return to England until 1855, having been detained in St. Petersburg for nine months as a prisoner on parole.

On returning to England, his health was found to be so impaired by the severity of the Russian climate, that, acting under medical advice, he sailed in October 1855, for Sydney, N.S.W. Immediately on his arrival, in January 1856, he was appointed City Engineer of Sydney, and subsequently also City Surveyor.

He held these offices for fifteen years, during which time he carried out extensive drainage works, macadamised all the roads, designed and built the Exhibition building of 1868, which

was opened by H.R.H. the Duke of Edinburgh, built and started large waterworks at Botany, and designed and partly erected the town hall.

In 1871, his health again failing, Mr. Bell retired from the municipal service, and began to practice on his own account, at the same time taking a lighter appointment - that of Resident Engineer to superintend certain works proposed to be carried out at the north head of the Clarence river, under the harbours and rivers branch of the Department of Public Works,

On the expiry of it year, continued ill-health again obliged him to resign, and a sea voyage being recommended, he left for England, where he arrived on the 28th of February 1874. At first, he seemed to be making rapid progress towards recovery, but in little more than a year from the date of his return he was seized with an epileptic fit; and after a short interval of consciousness, quietly passed away in his sleep on the 5th of May 1875, in the sixty-fourth year of his age.

Mr. Bell was elected a Member of the Institution of Civil Engineers on the 4th of April 1854.

---

### *Others with association to the site*

**William Clark** (17 March 1821 – 22 January 1880)

(details attached)

William Clark authorised the Upper Nepean Water Supply Scheme. And Bondi and Botany Sewage Schemes. The Upper Nepean Scheme included the Compensation Weirs.

(Jon Breen 2019)

---

**Henry Jersey Flegg** (1878-1960)

(details attached)

Henry Flegg's office was at the Crown Street Reservoir site. Flegg deferred his retirement until after WW2 when his replacement, H G Sweet, returned from Military Service. Sweet was to become the Engineer - in- Chief.

(Jon Breen 2019)

---

# William Clark (inventor)

---

**William Clark** (17 March 1821 – 22 January 1880) was an English civil engineer and inventor.

## Life

---

Born at Colchester, Clark attended King's College London in 1842, and was made an Associate of King's College in 1845. Soon afterwards he became a pupil of, and subsequently an assistant to, J. Birkinshaw, M. Inst. C.E., under whom he was employed for three years on the works of the York and North Midland railway system. In 1850 he was connected with Sir Goldsworthy Gurney in the warming and ventilation of the houses of parliament. In 1851 he entered into partnership with A. W. Makinson, M. Inst. C.E., the firm devoting special attention to the warming and ventilating of public buildings. He shortly afterwards obtained the appointment of surveyor to the local board of health of Kingston-upon-Hull, and devised a complete system of drainage for that town.

In 1854 he entered the service of the East Indian Railway Company, and, after acting for a year as resident engineer on a portion of the East India railway, became the secretary and subsequently the engineer to the municipality of Calcutta. Clark devoted himself with zeal to his work, and very soon proposed a complete scheme for the drainage of the city, only imperfectly carried out owing to the expense. He also devised a system of waterworks, comprising three large pumping stations, with their filter beds and settling tanks.

He returned to England in 1874, when he entered into partnership with W. F. Batho, M. Inst. C.E., and in the same year received the appointment of consulting engineer to the Oudh and Rohilkund Railway Company. In December 1874 he visited Madras, where he remained four months planning a system of drainage for that city. He was selected by the colonial office in 1876, in concert with the government of New South Wales, to advise and report upon the water supply and drainage of Sydney. During a residence of two years in the Australian colonies he prepared schemes of a like description for Port Adelaide, Newcastle, Bathurst, Goulburn, Orange, Maitland (the Walka Water Works), and Brisbane, and afterwards for Wellington and Christchurch in New Zealand.

Among Clark's inventions was his tied brick arch, of which examples exist in Calcutta and in other places in India; and he was joint patentee with William F. Batho of the well-known steam road roller. Among his schemes was a proposal for reclaiming the salt-water lakes in the neighbourhood of Calcutta. He was elected a member of the Institution of Civil Engineers on 2 February 1864, and a member of the Institution of Mechanical Engineers in 1867.

He died from liver disease, at Surbiton, on 22 January 1880. He was the writer of *The Drainage of Calcutta*, 1871.<sup>[1]</sup>

## References

---

- ↑ The drainage of Calcutta ([https://books.google.com/books/about/The\\_drainage\\_of\\_Calcutta.html?id=oQVbAAAAQAAJ&redir\\_esc=y](https://books.google.com/books/about/The_drainage_of_Calcutta.html?id=oQVbAAAAQAAJ&redir_esc=y)): a paper read at the Bengal social science congress, held at the town hall, Calcutta, on 2 February 1871 (Google eBook)

## Flegg, Henry (Jersey) (1878–1960)

by [Chris Cunneen](#)

This article was published in [Australian Dictionary of Biography, Volume 8, \(MUP\), 1981](#)

**Henry (Jersey) Flegg** (1878-1960), football administrator and sewerage engineer, was born on 6 April 1878 at Bolton, Yorkshire, England, son of **Henry Flegg**, engine-man, and his wife Ann, née Willis. In 1884 the family came to Sydney where his father worked as a labourer for the Metropolitan Board of Water Supply and Sewerage. As a carrot-headed lad, **Flegg** was nicknamed '**Jersey**' after the red-haired governor. He attended St John's and William Street schools, Darlinghurst. After his father's death in 1894 '**Jersey Flegg**' was in turn employed as labourer by the water board, beginning on 16 October. At his marriage, with Congregational forms, to a dressmaker, Margaret, late O'Mara, née Delohery, on 26 February 1908 he described himself as electrician. In 1910 he was appointed assistant inspector, sewerage maintenance, in 1930 general superintendent and engineer in 1936, because of his 'outstanding knowledge of and contribution to sewerage maintenance' (though he had no formal qualifications). He retired from the water board on 6 April 1946 and was awarded the Imperial Service Medal.

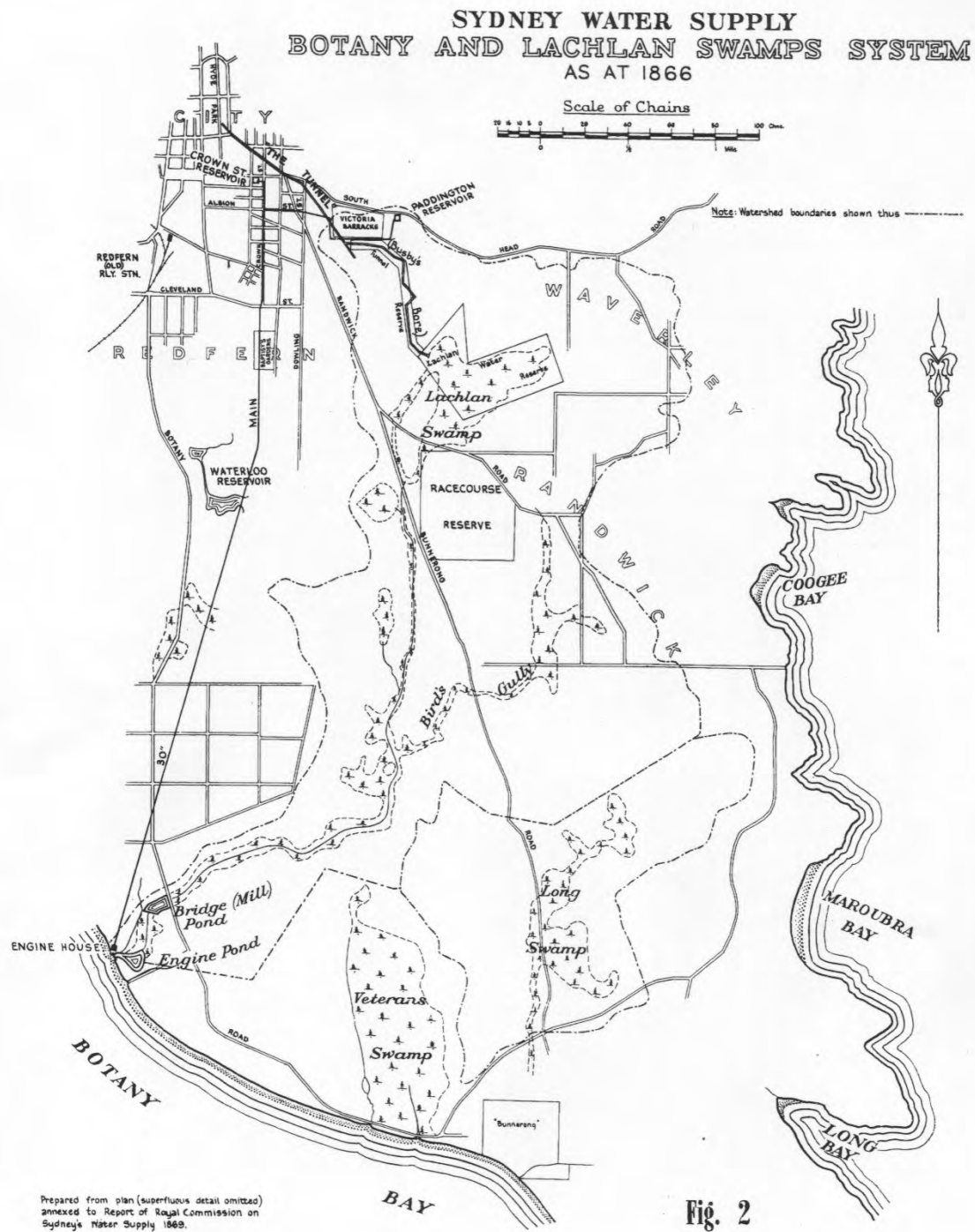
Spare-time energies **Flegg** devoted to football. A hard-working and strong-tackling Rugby Union forward, he had played for the Adelphi club in the 1890s, then for Sydney. In 1902 he represented the State against Queensland. When a players' revolt led to the foundation of the New South Wales Rugby Football League, in January 1908 he was elected secretary of the Eastern Suburbs club and founding delegate to the league, of which he was made a life-member. In the 1908 and 1909 seasons he captained an Easts team that included 'Dally' Messenger and Sid Pearce, then retired to become State selector, holding the position for a record nineteen years. He was also sometime metropolitan and Australian selector, and in 1922 managed the State team which toured New Zealand.

In 1925 **Flegg** became a vice-president of the league and member of its judicial committee. Sir Joynton Smith's elevation to position of patron in 1929, after Fred Flowers' death, led to **Flegg**'s election as president. Joynton Smith's had been a nominal presidency, **Flegg**'s was to be an active and guiding role for the next thirty-one years. The Depression reduced the league's gate receipts from £24,487 in 1928 to £15,500 in 1931 and for the next fifteen years revenue remained low. A man of 'inflexible determination ... a rugged and likeable character, forthright in his utterances', **Flegg** managed the league's affairs shrewdly. In 1937-58 he was a director of the New South Wales Leagues' Club, and for seventeen of those years was chairman. As chairman of the Australian Board of Control from 1941 he was noted for exercising his casting vote without State favouritism.

Long a resident of Paddington, childless and from 1945 a widower, he later lived in the premises of the Leagues' Club, Phillip Street, which he had helped to build. He remained president of the State league and chairman of the Australian board until his death in hospital at North Sydney on 23 August 1960. After an Anglican service he was cremated. His estate was sworn for probate at £2228.



## *Appendix 2: Maps*

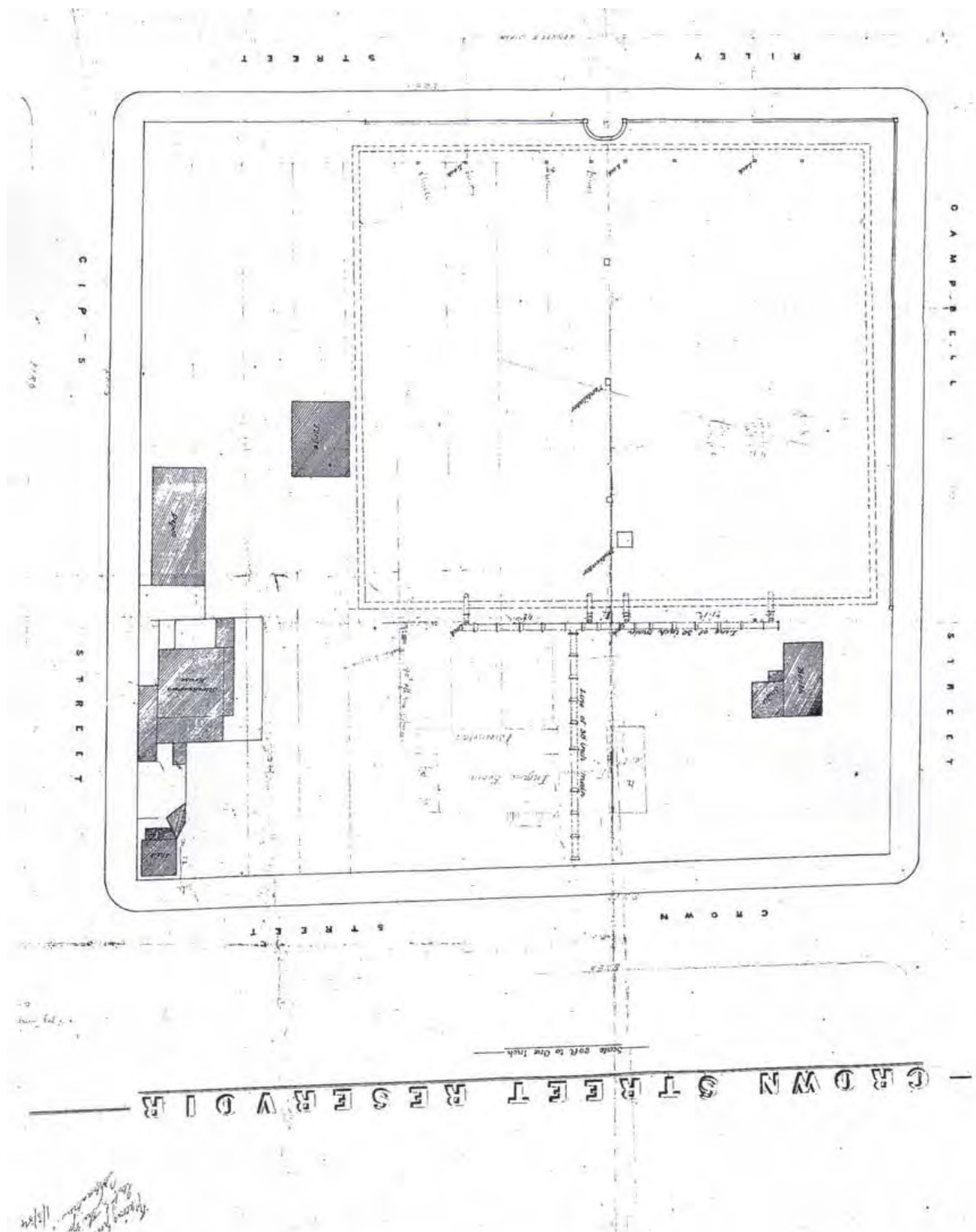


**Illustrating:** Map of the Lachlan Swamps and the Botany Swamps Scheme  
[Published in the *Sydney Water Board Journal*, October 1953, p. 77]



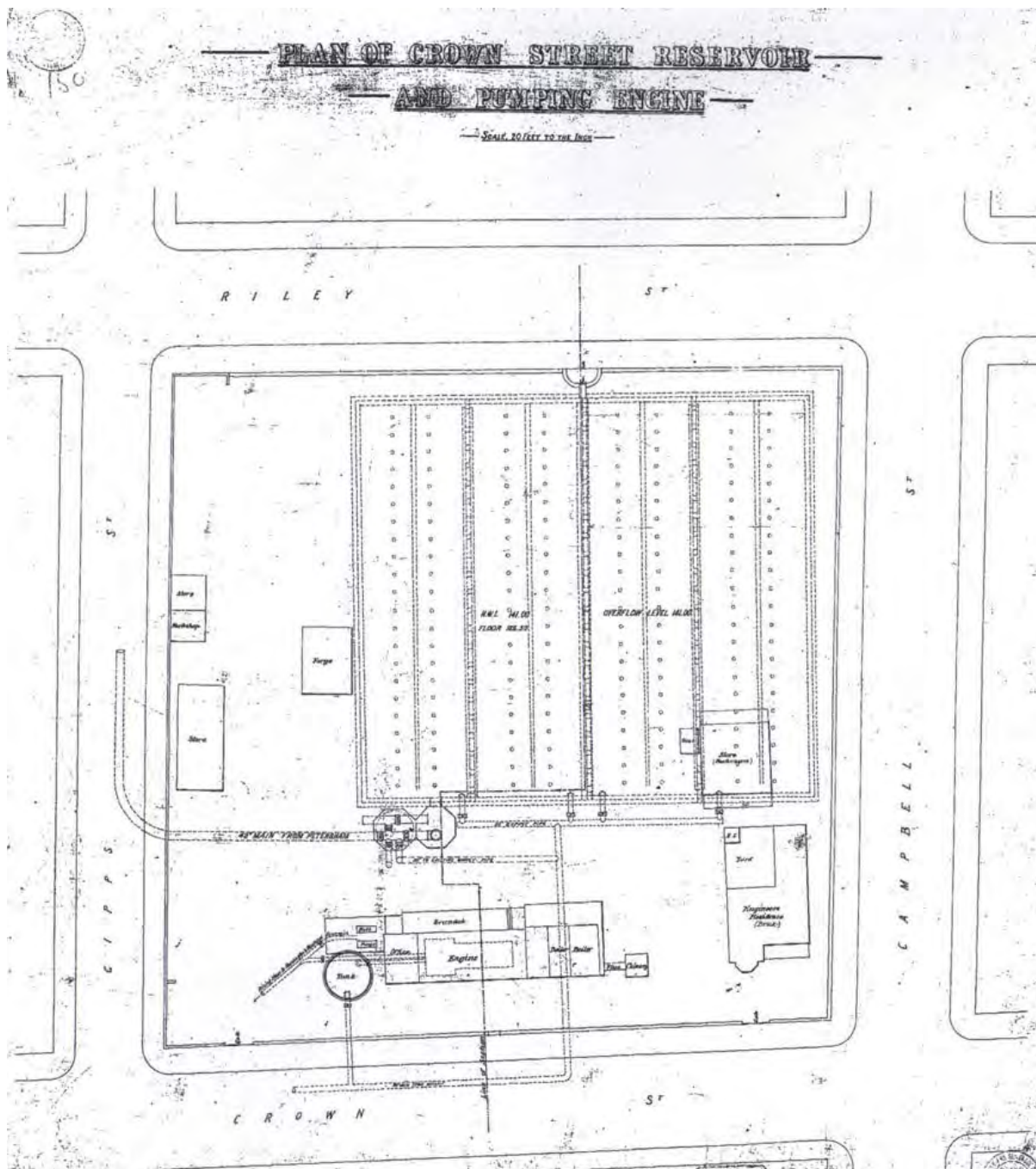
**Illustrating:** An Early Proposal of the Botany Swamps Scheme.

Note the proposed position of the Paddington Reservoir. [Sydney Water/Water NSW Historical Research Archive, uncatalogued]



**Illustrating: Historic Water Board Plan Showing layout of the site c.1860s-1870s.**

The plan shows the Reservoir, water mains, several other structures including a forge and one or two cottages. The Pumping Station No.1 is pencilled in as a proposed addition. [Sydney Water Plans – Index 21, Plan 6/21]

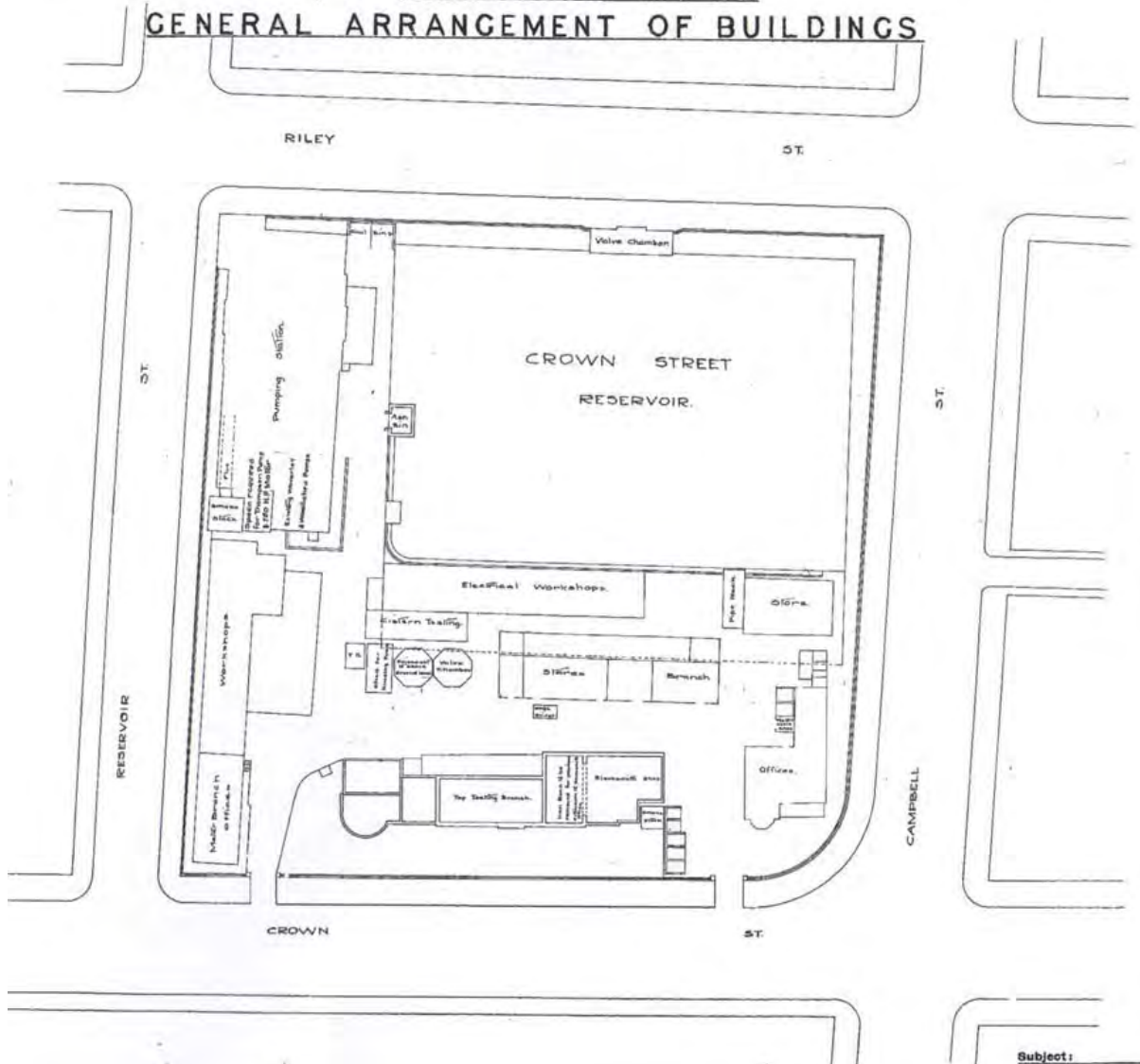


**Illustrating: Historic Water Board Plan Showing layout of the site c.1885**

The plan shows the Reservoir, water mains, Pumping Station No.1, Engineer's Residence and several small workshop structures. [Sydney Water Plans –Index 21, Plan 3/21]

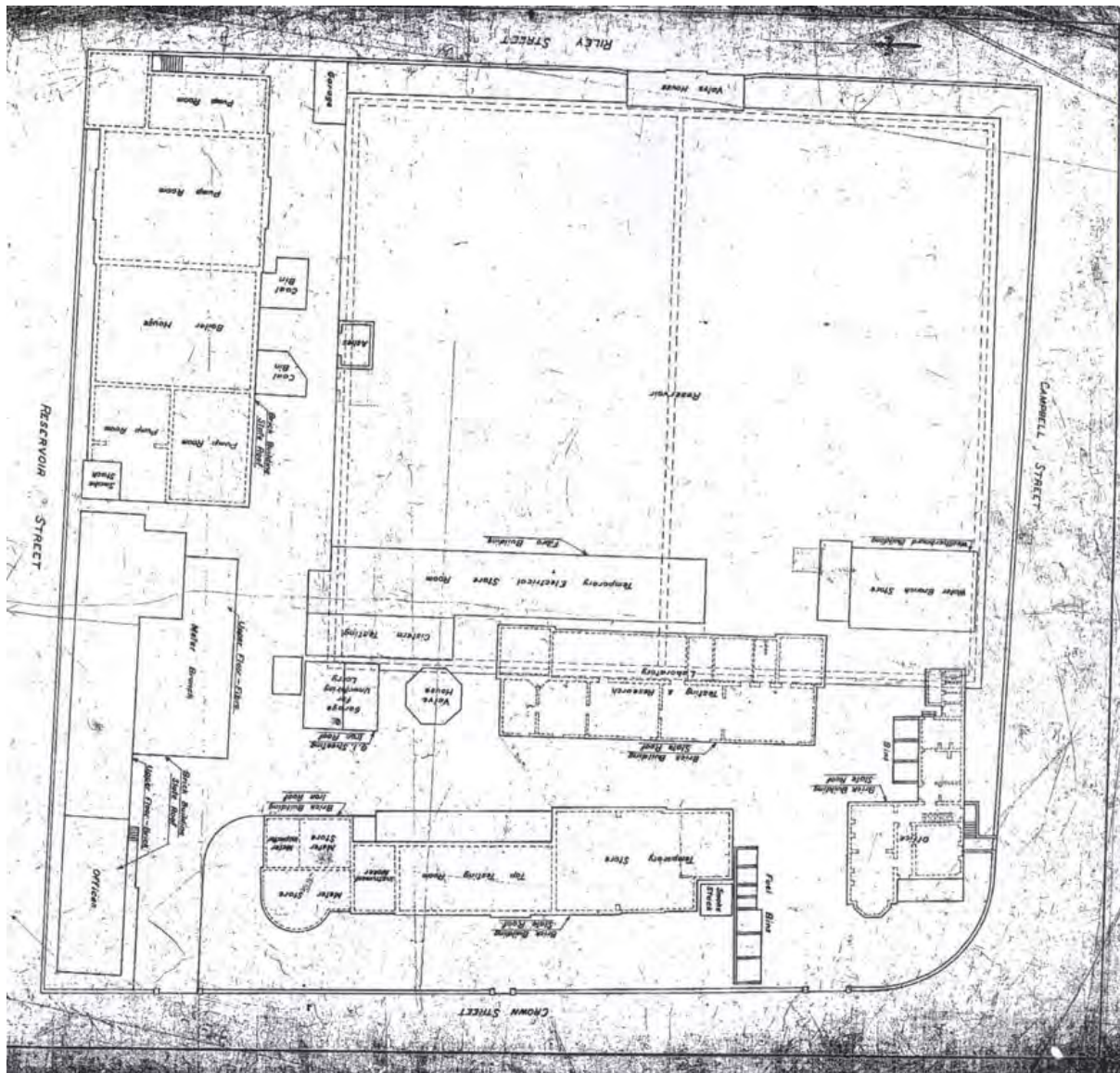
Metropolitan Board of Water Supply and Sewerage, Sydney.

CROWN ST. DEPOT  
GENERAL ARRANGEMENT OF BUILDINGS



**Illustrating: Historic Water Board Plan Showing layout of the site in 1924**

[Sydney Water Plans –Index 21, Plan 81/21]



**Illustrating: Historic Water Board Plan Showing layout of the site in 1936**

[Sydney Water Plans –Index 21, Plan 492/21]

[© Sydney Water Corporation, Heritage collection, uncatalogued]

*Appendix 4: Time Line for Key Dates for the Crown Street  
Reservoir (and site)*

## ***Dates***

1837 - Busby's Bore opens

1856 - Crown Street Reservoir site purchased by City (Sydney) Council

1857 - Construction of Crown Street Reservoir commences

1859 - (December) Crown Street Reservoir in service

1860 – Reservoir roof finished

1859 - Botany Swamps Water Pumping Station completed

1859 - Botany Swamps Water Supply commences

1879-1958 – Steam driven coal fired water pumping station built on site to supply  
Paddington & Woollahra Reservoirs

1888- Board of Water Supply and Sewerage (BWS&S) established

1888 - Upper Nepean Scheme replaces the Botany water supply

1890-1930 - Site used as central workshops and store depot

1989-1990s – Site for testing consumer-type taps, meters and sanitary fittings

1940-1949, 1962-1984 – Site of materials testing laboratory

1962 - Modern offices built on site, along Crown Street and the Riley Street corner

1962-1991 – Site of photographic services section

1965 - Electric pumping station built on site, replacing coal fired station

1993 - Soil on roof of reservoir replaced to lessen the load on the structure

1994- Sydney Water Corporation established

2000 – Reservoir and site listed on the NSW *State Heritage Register*

2002 - Reservoir and site entered on Sydney Water's *S170 Heritage & Conservation Register*

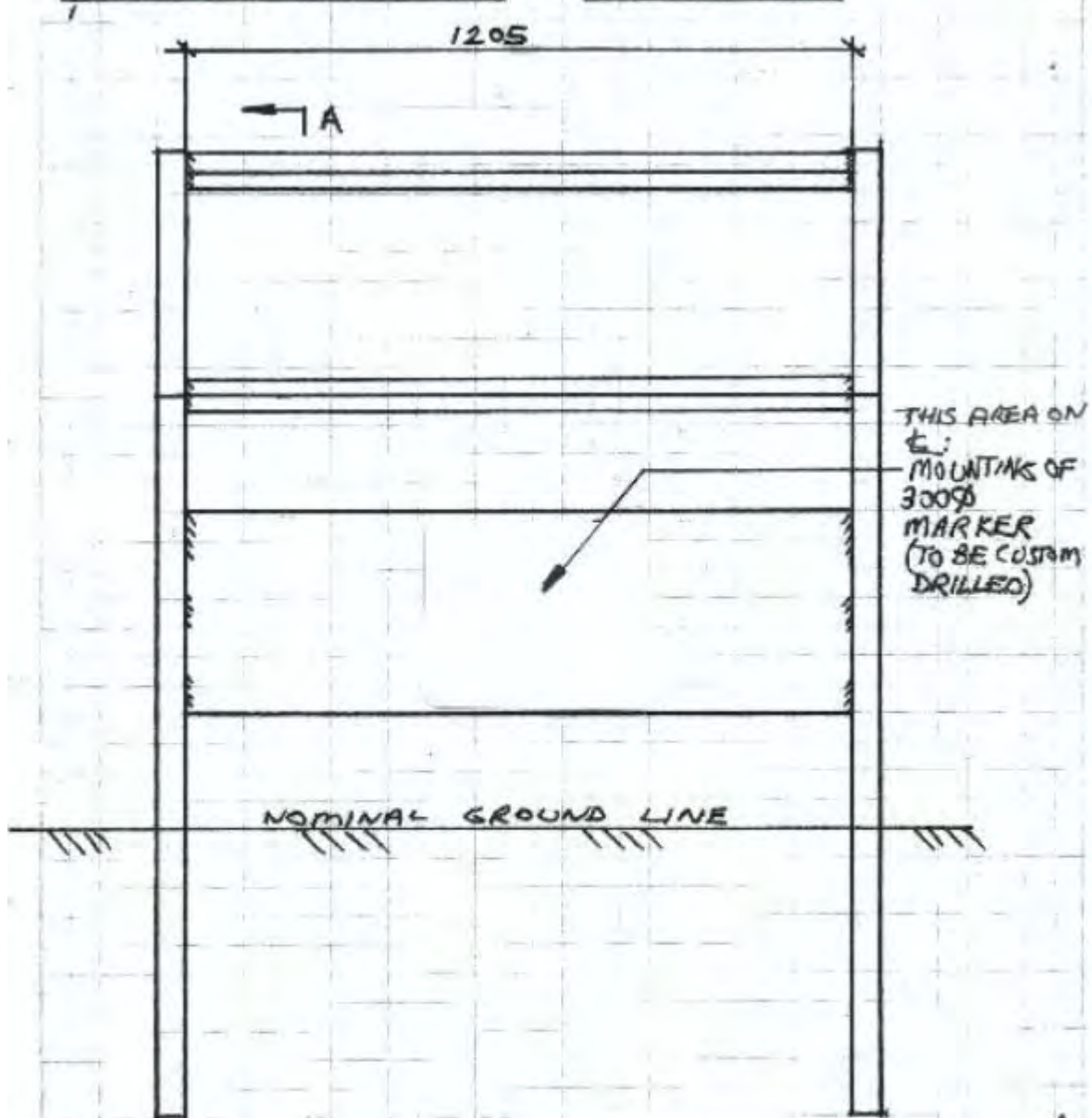
2008 - Garage structure partially removed from roof of reservoir.

2009 - Site subdivided, modern offices and former meter testing building sold off.

## *Appendix 5: The Interpretation Panel*

DIMENSIONS IN mm

SCALE: 1:10

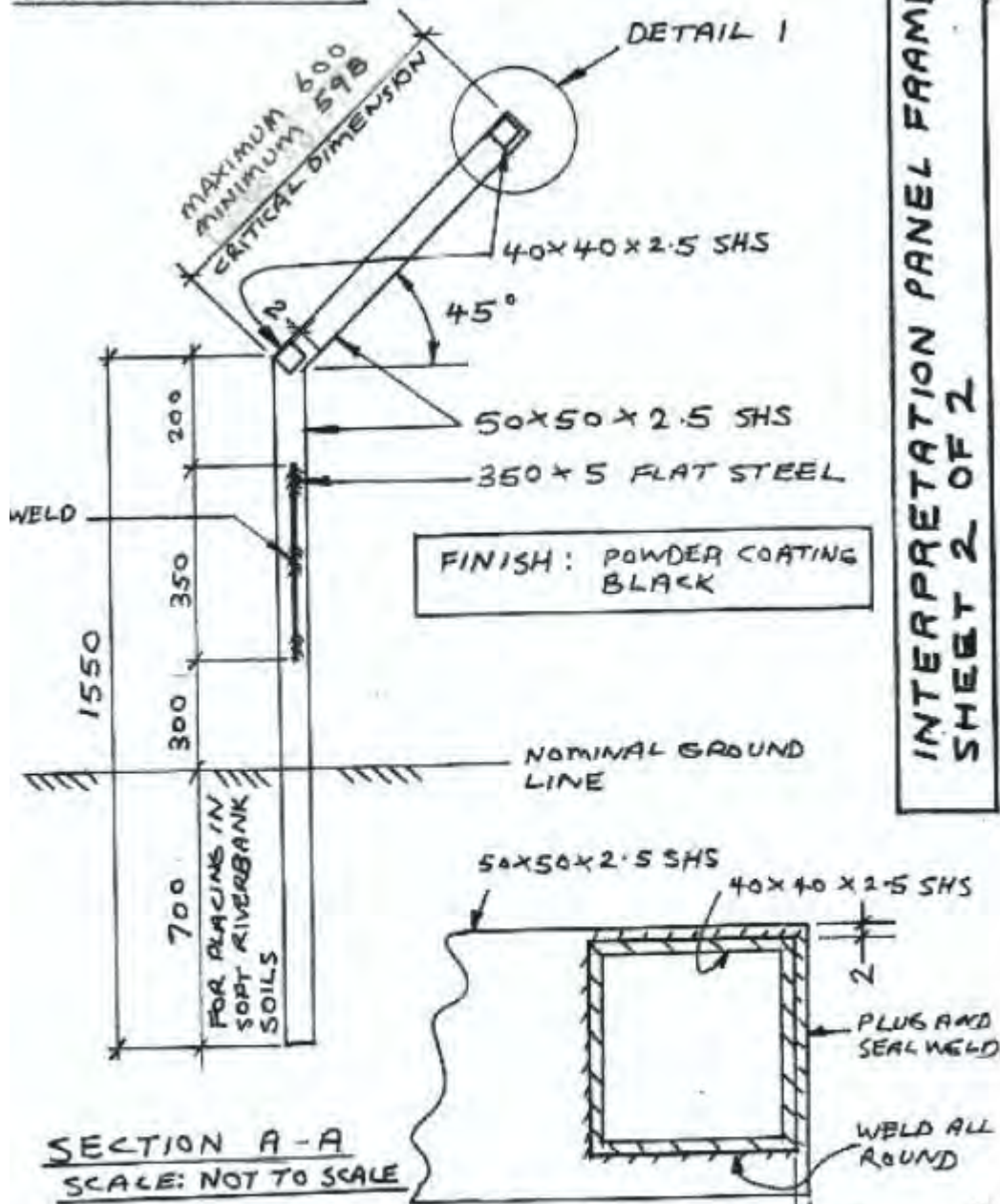


DRAWN: OWEN PEAKE  
DATE: 14 APRIL 2011

AMENDED TO REMOVE OUTLINE  
OF MARKER 16/8/2015 ©

**INTERPRETATION PANEL FRAME  
SHEET 1 OF 2**

DIMENSIONS IN mm



DRAWN: OWEN PEAKE  
DATE: 14 APRIL 2011

DETAIL 1

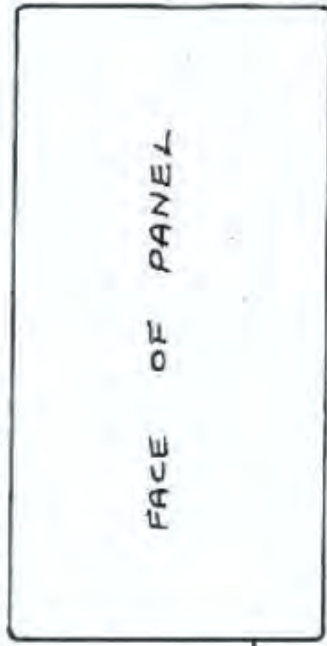
SCALE: NOT TO SCALE

REVISED  
9/9/2012  
17/8/2014

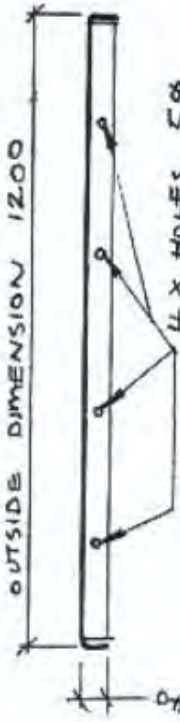
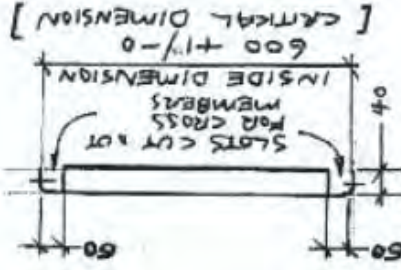
INTERPRETATION PANEL FRAME  
SHEET 2 OF 2

DIMENSIONS IN mm

SCALE: NOT TO SCALE



RADIUS OF  
FOLD DOWN  
NOT MORE  
THAN 5mm  
ALL ROUND



NOTES:

- 1) EDGES FOLDED DOWN  
ALL ROUND 40 mm
- 2) PANEL DESIGN: CUSTOM  
DESIGN SCREEN PRINTED  
ON STEEL SUBSTRATE IN  
VITREOUS ENAMEL

INTERPRETATION PANEL

VITREOUS ENAMEL PANEL  
GENERIC

DRAWN: OWEN PEARCE  
DATE: 14 APRIL 2011

REVISED

8/7/2014

## *Examples of Interpretation Panels*



*Interpretation panel for the steam tug Young Australian, Roper River, Northern Territory. Recognised May 2011.*



*Interpretation at Kings Bridge, Bendigo. This is one of two panels recognising a group of Monash & Anderson Monier arch bridges at Bendigo, August 2014.*

26 October 2018

Mr Neil Hogg  
Chairman  
Engineering Heritage Australia  
Engineers Australia  
Engineering House  
11 National Circuit  
BARTON ACT 2600

Dear Mr Hogg

**ENGINEERING HERITAGE RECOGNITION OF SYDNEY WATER'S CROWN STREET RESERVOIR**

I am delighted to provide approval for Engineers Australia to celebrate the importance of Crown Street Reservoir by giving it formal heritage recognition. The reservoir is Sydney Water's oldest reservoir and is the oldest of its type in Australia. It has been in constant use since 1859.

I also approve the installation of a commemoration panel and an engineering heritage marker at the reservoir site, and for a ceremony to be held on the site.

Sydney Water will need to approval the final detail of the commemorative panel and for the arrangements of ceremony to be held at the pumping station.

Phil Bennett, our Lead Heritage Adviser at Sydney Water, can be contacted to discuss the panel, ceremony and other details. Phil can be contacted on [phil.bennett@sydneywater.com.au](mailto:phil.bennett@sydneywater.com.au) or by phoning 02 8849 5936.

Yours sincerely

A handwritten signature in black ink, appearing to read "K Young".

Kevin Young  
**Managing Director**